Motivation to Choose the Night Course in Engineering

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***Abstract*—This paper presents the research about the motivation of students to choose night period for enrolling engineering programs. The survey was conducted in two different countries of different continents but united by the language and common history. The results are showed in details and some conclusions about the motivations are presented in accordance with the results taking into account the geography, the economic and historical moments of both countries involved in the research**

Keyword s— nightcourses, engineering, universities, motivation.

I. INTRODUCTION

This paper was born in during the talk about post job period students or what the team has named after night time students in engineering programs offered by many Engineering Schools worldwide and the question that rouse: "Why post job period studies choices? Once not all the students work part time or fulltime? It is something that teachers in some realities can see in the practice of teaching.
Speaking more about cultural aspects of study in different countries there are differences and similarities that can be perceived and one of them is the choice of post employed period in at least two different countries that share the same language as Portugal and Brazil.

Along the discussions carried out by the team of international researchers from these countries the main question was what are the motivations of many young students to choose this particular time of the day to have classes.
After some hypothetical discussions the group decided to carry on a research involving universities – public and private from both countries to have some insight.
After a long period of data collecting it is possible to line up the possible motivations for this choice that differ from country to country.

The goal of the present work is the post labour period students in the university – motivations for this choice. Although it is not a simple task the motivation was higher than the difficulties, once the group of researchers are all University Professors in Engineering and committed with the quality of education research in the Engineering and technical follow.

II. CONCEPT

It is a fact that many Universities and Engineering Schools have started to offer for many reasons since the need to quickly form professionals for the work market to the lifelong formation so necessary at this point of human history.

Today, in many institutions worldwide what is called non-traditional students is the majority of the student population in higher education. About more than sixty percent of students enrolled are now over twenty-five and more than sixty percent of students are now working full-time while pursuing their education. This fact leads to the need to start using a new term to describe these students. This changed demographic signals the importance of speaking carefully about the type of educational institution and the particular student needs being addressed. We can no longer generalize from the base and traditional needs of students eighteen to twenty-three years old. This tectonic shift will compel many new conversations and directions in higher education [1].

The observation that young non-working students choose also this time frame to study in an engineering program was the initial question mark. However the discussions and search for data showed another universe of uncertainties and so the decision to make a deeper research about this issue was born.

The results paid of the endeavour and more questions have risen however it has been an open door for more investigations.

A. Who is a non-traditional student?

For years more and more people have opted to study in the evening as a way to work and study. The reasons can change by person and in time. What it means is that the reasons are not dissociated from the personal history and the political and economical period of their lives.

With social and economic trends evolving across the globe in recent years, the traditional profile of a student ready for college right after high school and enrolled in full-time classes to complete a degree, has given way to the new "non traditional" students with varying attributes.

What is called "new-age learner" may already be working or have a family and may be seeking flexible schedules and

978-1-7281-6638-4/20/$31.00 ©2020 IEEE

program structures that allow her/him to progress at her/his own pace, depending on work or family obligations.

- Delaying post secondary enrolment
- Employed full time, hence looking for part-time options
- Independent of financial aid
- One or more dependents, single caregiver
- Does not have a traditional high school diploma or do?
- Need to boost the career

B.What does non-traditional student demand?

- Affordable learning solutions with a quick return on investment
- Courses offering flexibility and multidisciplinary options
- Course availability in multiple formats and days/times
- Career counseling support — Getting a better job is their top objective
- Clear proactive communication/ information about services offered

However this utopian program is not at the door of many schools and so people have to deal with what is available for them. Although MOOCs are a new and affordable way to get certification still a university degree for many is a goal and a dream for several reasons. Personal satisfaction is one of them; another is the social status and there are also family expectations (2).

C.Characteristics of the non-traditional students or what has been named after night time students

For night students, many with professions and other responsibilities, there is an imperative need to focus on what is most important. Study groups usually come from everyone's willingness to help each other through reading and writing. Usually, night time students tend to react more resilient to the challenges posed by college-level training.

At the start there are no programmatic differences between the night course and the day course. The students of the night are expected to be the same as expected of the day students. However, there is a greater tolerance for students at night as they have less time to study. The requirement remains, but with some nuances.

Students who study and work end up having to make better management of their time. Yet at the outset it can be tricky to be able to do all the tasks they commit. In this sense, it is necessary to define priorities and methods of study that consolidate learning faster. It will probably be impossible to read all the contents and books programmed for a certain chair. That is why it will be so essential to have a study group that allows the division of readings and sharing of notes among all.

It must be taken into account that an overload can cause health problems, especially those related to the hours of sleep. For the most perfectionist students will have to keep in mind that even with hard work, it will not be possible to add more hours a day. Often it will be advisable to keep at least 7 to 8 hours of sleep, a balanced diet and some physical exercise. Those who withdraw within one or two hours of study may be compensated for at the time of an important exam [3].
Between working, caring for a family and studying, there may be difficulties in maintaining a space dedicated to study. The night student should anticipate this problem by organizing a small shrine dedicated to reading, taking notes and doing work indoors. In some situations it will be valuable to find a public space to meet with your study group, especially during the weekends.

Some authors understands that pedagogical difficulties presented by night students who work can be overcome and, for this, the institution must remove "the prejudices that surround them", because "with science and culture [students] grow, learning to reflect through study, research and higher quality university education. For this to happen it is necessary to modify pedagogical proposals that conceive them as needy, backward, incompetent. It is necessary to make the relationship with knowledge a challenge, leading them to resort to sources and high culture and not to the handouts or the simplification of contents "[4].

D. Differences in Public Regime for Working Students in Portugal and Brazil

The student workers have conquered in Portugal a special regime both for access to higher education as privileges during the course, as recommended in section 7 of the same Law: "The student-workers will have special access and entrance regimes and higher education which guarantee the objectives of lifelong learning and the flexibility and mobility of school paths ". In this way, these students will receive differentiated treatment, considering their concrete conditions of subsistence, differently from what happens in Brazil, since the students who work and study have to articulate the time of the work with the time of the study in order to meet the needs of each one. Sometimes they end up giving up their free time, or they study, and their training, since they need the work for their subsistence and their relatives [5].

III. METHODOLOGY

The chosen methodology was the e-survey more specifically the google survey, which is easy and accessible worldwide.

Two public and two private universities with engineering schools in different cities of both countries – Portugal and Brazil were invited to answer the survey.

All students who answered the questionnaire were in first year of program.

The process took long because of the aspect of being an invitation to answer the questionnaire
The questions were simple and multiple choices.
The data were collected and the results are displayed in a chart with some clear conclusions.
The total number of students who answered the survey is 255

The research does not take into account the school performance just the motivation for this choice of in class graduation

The main questions of the questionnaire were:

- The university
- Age
- Gender
- Marital status
- Parents High Education
- Parents Household
- Number of child
- Monthly Incoming
- Professional activity
- Place of residence
- Work place
- Travel time between High Education Institution and the residence
- Travel time between High Education Institution and the workplace
- Main reasons to choose a night course(8)
- Another reasons

IV. Results and Discussion

Participants of this study are 255 students from the night courses in engineering, from public and private High Education in Brazil and Portugal, distributed by gender as shown in Table I.

TABLE I. Gender And Sample Size

	PT_PUBUNIV	PT_PRIVUNIV	BR_PUBUNIV	BR_PRIVUNIV	TOTAL
MALE	22	13	43	102	180
FEMALE	4	2	7	62	75
	26	15	50	164	255

Tables II to Table VI presents the obtained data regarding the five dimensions used in the questionnaire, namely: Student age; Economic aspects; Work; Education and Work and Education.

TABLE II. Student Age

	Portugal		Brasil	
	Public	Private	Public	Private
17-20	1	0	11	37
21-24	8	3	7	93
25-28	4	2	8	22
29-32	4	3	7	4
32-42	3	6	13	5
43-62	6	1	4	2
	26	15	50	163

As it can be seen from the analysis of table II in both Brasil and Portugal High Education Institutions the age of the students is mostly between 21-24 years old.

TABLE III. Economic Aspect

Portugal	Public University	Private University	Brasil	Public University	Private University	TOTAL
No answer	2	2	No answer	3	17	24
< 600€	4	1	< R$ 1254	8	13	26
From 601€ to 1000€	19	10	From R$ 1255 to R$	20	42	91
From 1001 € to 4000 €	1	1	From R$ 2005 to R$	18	75	95
From 4001€ to 6000€	0	0	From R$ 8641 to R$	1	10	11
> 6000€	0	1	> R$ 11262	0	7	8
Total	26	15	Total	50	164	255

Relatively to students economic aspect it is verified that the students that attend the Portuguese High Education Institutions have a lower value of income than their partners in the Brasil Portuguese High Education Institutions

TABLE IV. Work

		PT_PUBUNIV	PT_PRIVUNIV	BR_PUBUNIV	BR_PRIVUNIV	TOTAL
Civil Servant	No answer	10	9	17	37	73
	Secondary activity	0	1	0	4	5
	Principal ativity	2	1	4	10	17
	None	14	4	29	113	160
Employee	No answer	3	1	12	23	39
	Secondary activity	4	1	1	17	23
	Principal ativity	13	10	20	55	98
	None	6	3	17	69	95
Self employee	No answer	12	9	17	36	74
	Secondary activity	0	1	1	14	16
	Principal ativity	3	0	8	21	32
	None	11	5	24	93	133
Student	No answer	6	3	16	15	40
	Secondary activity	6	8	10	16	40
	Principal ativity	13	4	20	124	161
	None	1	0	4	9	14

As for employment, it is found that in Portugal most students are presents “employee “ as their principal activity while in Brasil most do not work, as their principal activity is “ student” (144)

TABLE V. Education

Parents High education	PT_PUBUNIV	PT_PRIVUNIV	BR_PUBUNIV	BR_PRIVUNIV	TOTAL
Both	3	1	2	32	38
One	1	7	10	48	66
None	22	7	38	84	151
TOTAL	26	15	50	164	255

When we analyze the parents previous formation we verify that 60% of them never attended higher education and about 25% only one parent has higher education in the background.

TABLE VI. Work and Education

	PT_PUBUNIV	PT_PRIVUNIV	BR_PUBUNIV	BR_PRIVUNIV	TOTAL
Economic	1	0	13	19	33
Work in daytime	10	5	8	72	95
Proximity from university to home	0	2	3	7	12
Proximity from university to home	0	0	0	2	2
Family pressure	2	0	2	1	5
friends Influence	3	0	11	20	34
only course alternative	0	0	0	2	2
chronic illness or special nee	3	0	3	2	8
Others	3	1	1	13	18
No answer	4	7	9	26	46
TOTAL	26	15	50	164	255

The reasons point out for the frequency of a night course are foremost labour in daytime, in second place economic reasons, and third the friends influence.

In order to study the obtained results SPSS 25.0 statistical package were used to make a multiple comparison analysis and Scheffe test. The obtained results, with statistical significance of p 0,05 level, are listed in TABLE VII.

Regarding age, there is a statistically significant difference between the private university in Brazil and the other universities.

As for gender, the only statistically significant difference is between public and private High Education Institutions in Brasil.

TABLE VII. MULTIPLE COMPARISON ANALYSIS AND SCHEFFE TEST

Dependent Variable	(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower	Upper
AGE	UM	UA	-0,39744	2,25655	0,999	-6,7486	5,9537
		USC	7,90947*	1,46911	0	3,7746	12,0444
		IFC	2,14923	1,68275	0,653	-2,587	6,8854
	UA	UM	0,39744	2,25655	0,999	-5,9537	6,7486
		USC	8,30691*	1,87735	0	3,023	13,5908
		IFC	2,54667	2,04886	0,672	-3,2199	8,3133
	USC	UM	-7,90947*	1,46911	0	-12,0444	-3,7746
		UA	-8,30691*	1,87735	0	-13,5908	-3,023
		IFC	-5,76024*	1,12431	0	-8,9247	-2,5958
	IFC	UM	-2,14923	1,68275	0,653	-6,8854	2,587
		UA	-2,54667	2,04886	0,672	-8,3133	3,2199
		USC	5,76024*	1,12431	0	2,5958	8,9247
GENDER	UM	UA	0,02051	0,14679	0,999	-0,3926	0,4337
		USC	-0,21811	0,09557	0,16	-0,4871	0,0509
		IFC	0,01385	0,10947	0,999	-0,2943	0,3219
	UA	UM	-0,02051	0,14679	0,999	-0,4337	0,3926
		USC	-0,23862	0,12213	0,284	-0,5823	0,1051
		IFC	-0,00667	0,13328	1	-0,3818	0,3685
	USC	UM	0,21811	0,09557	0,16	-0,0509	0,4871
		UA	0,23862	0,12213	0,284	-0,1051	0,5823
		IFC	,23195*	0,07314	0,02	0,0261	0,4378
	IFC	UM	-0,01385	0,10947	0,999	-0,3219	0,2943
		UA	0,00667	0,13328	1	-0,3685	0,3818
		USC	-,23195*	0,07314	0,02	-0,4378	-0,0261
MARITAL STATUS	UM	UA	0,01282	0,13904	1	-0,3785	0,4042
		USC	0,24859	0,09052	0,059	-0,0062	0,5034
		IFC	-0,15385	0,10369	0,533	-0,4457	0,138
	UA	UM	-0,01282	0,13904	1	-0,4042	0,3785
		USC	0,23577	0,11568	0,248	-0,0898	0,5613
		IFC	-0,16667	0,12624	0,628	-0,522	0,1887
	USC	UM	-0,24859	0,09052	0,059	-0,5034	0,0062
		UA	-0,23577	0,11568	0,248	-0,5613	0,0898
		IFC	-,40244*	0,06928	0	-0,5974	-0,2075
	IFC	UM	0,15385	0,10369	0,533	-0,138	0,4457
		UA	0,16667	0,12624	0,628	-0,1887	0,522
		USC	,40244*	0,06928	0	0,2075	0,5974
PARENTS HIGH EDUCATION	UM	UA	0,33077	0,23362	0,572	-0,3268	0,9883
		USC	0,4137	0,1521	0,063	-0,0144	0,8418
		IFC	0,01077	0,17421	1	-0,4796	0,5011
	UA	UM	-0,33077	0,23362	0,572	-0,9883	0,3268
		USC	0,08293	0,19436	0,98	-0,4641	0,63
		IFC	-0,32	0,21212	0,518	-0,917	0,277
	USC	UM	-0,4137	0,1521	0,063	-0,8418	0,0144
		UA	-0,08293	0,19436	0,98	-0,63	0,4641
		IFC	-,40293*	0,1164	0,008	-0,7305	-0,0753
	IFC	UM	-0,01077	0,17421	1	-0,5011	0,4796
		UA	0,32	0,21212	0,518	-0,277	0,917
		USC	,40293*	0,1164	0,008	0,0753	0,7305
FAMILY HOUSEHOLD	UM	UA	-0,0359	0,21918	0,999	-0,6528	0,581
		USC	0,34053	0,14269	0,13	-0,0611	0,7421
		IFC	-0,00923	0,16344	1	-0,4692	0,4508
	UA	UM	0,0359	0,21918	0,999	-0,581	0,6528
		USC	0,37642	0,18234	0,237	-0,1368	0,8896
		IFC	0,02667	0,199	0,999	-0,5334	0,5868
	USC	UM	-0,34053	0,14269	0,13	-0,7421	0,0611
		UA	-0,37642	0,18234	0,237	-0,8896	0,1368
		IFC	-,34976*	0,1092	0,018	-0,6571	-0,0424
	IFC	UM	0,00923	0,16344	1	-0,4508	0,4692
		UA	-0,02667	0,199	0,999	-0,5868	0,5334
		USC	,34976*	0,1092	0,018	0,0424	0,6571
NUMBERS OF CHILDS	UM	UA	-0,01538	0,21407	1	-0,6179	0,5871
		USC	0,28705	0,13937	0,239	-0,1052	0,6793
		IFC	-0,27538	0,15964	0,397	-0,7247	0,1739
	UA	UM	0,01538	0,21407	1	-0,5871	0,6179
		USC	0,30244	0,1781	0,412	-0,1988	0,8037
		IFC	-0,26	0,19437	0,618	-0,8071	0,2871
	USC	UM	-0,28705	0,13937	0,239	-0,6793	0,1052
		UA	-0,30244	0,1781	0,412	-0,8037	0,1988
		IFC	-,56244*	0,10666	0	-0,8626	-0,2622
	IFC	UM	0,27538	0,15964	0,397	-0,1739	0,7247
		UA	0,26	0,19437	0,618	-0,2871	0,8071
		USC	,56244*	0,10666	0	0,2622	0,8626
INCOMING	UM	UA	-0,20256	0,35245	0,954	-1,1946	0,7894
		USC	-,70481*	0,22956	0,026	-1,3509	-0,0587
		IFC	-0,38923	0,26283	0,534	-1,129	0,3505
	UA	UM	0,20256	0,35245	0,954	-0,7894	1,1946
		USC	-0,50225	0,2933	0,404	-1,3278	0,3233
		IFC	-0,18667	0,32001	0,952	-1,0874	0,714
	USC	UM	,70481*	0,22956	0,026	0,0587	1,3509
		UA	0,50225	0,2933	0,404	-0,3233	1,3278
		IFC	0,31558	0,17573	0,36	-0,179	0,8102
	IFC	UM	0,38923	0,26283	0,534	-0,3505	1,129
		UA	0,18667	0,32001	0,952	-0,714	1,0874
		USC	-0,31558	0,17573	0,36	-0,8102	0,179

*. The mean difference is significant at the 0.05 level.

UM- PT_PUBUNIV	IFC- BR_PUBUNIV
UA- PT_PRIVUNIV+X76:AE91	USC-BR_PRIVUNIV

When we analyze the marital status and the number of child we verify the existence of significant statistic difference between private and public High Education Institutions in Brasil.

As for the monthly incoming there is a statistically significant difference between the Brazilian and the Portuguese students.

Regarding the others parameters used in this study we did not find statistically significant difference between them.

V. CONCLUSIONS

Regarding the data obtained with this analysis we can conclude that the main reason for choose a night course are: the limitation of going to class in day time as they work, the second one is the economic reasons the and the third one is the friends influence.

Comparing the situation in the two countries we conclude that there is statistically significant difference in the monthly incoming between the students in these two countries, being Portugal the one with lower incoming,

The others statistically significant difference was found in parameters like, age, gender, marital status, parents high education, family household and number of child, between the private and public Higher institutions in Brasil.

ACKNOWLEDGMENT

This work is supported by national funds through FCT – Fundação para a Ciência e Tecnologia within the Project Scope: UID/CEC/00319/2019/2019 and the Project UID/CTM/002642C2T – Centro de Ciência e Tecnologia Têxtil.

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